

# *The* AMERICAN JOURNAL *of* MEDICAL TECHNOLOGY

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VOLUME 8

MARCH, 1942

NUMBER 2

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## REMOVING "FROZEN" PLUNGERS FROM SYRINGES BY A HYDRAULIC PRESSURE METHOD

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"Pressure applied from without to any part of a confined fluid is transmitted equally in all directions to every part of the interior of the enclosing container." The hydraulic press is a practical application of this fundamental principle known as Pascal's Law.

A simple modification of the hydraulic press has been employed in solving one of the most annoying of laboratory problems, the "frozen" syringe. The hydraulic press is capable of exerting enormous pressure, for its mechanical advantage is equal to the ratio between the cross-sectional areas of the pistons, which in this case would be the plungers.

McCoord<sup>1</sup> has devised a method which involves the use of a 1cc. tuberculin syringe and needle. The needle passes through a small bit of rubber and into the outlet of the "frozen" syringe. The piece of rubber makes an airtight seal. Water is then forced from the

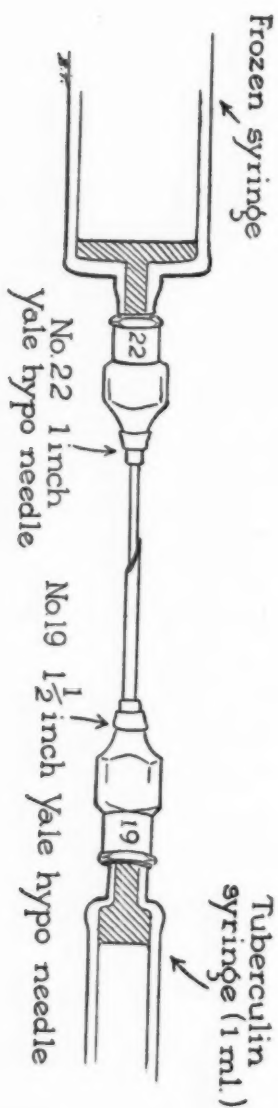


Figure 1

tuberculin syringe into the "frozen" syringe in order to remove the plunger. In our experience however, an air-tight seal is not always obtained and spraying of the operator may occur frequently.

Looney<sup>2</sup> published a partial alteration of this arrangement. Between the two syringes he uses a connection made by brazing together the hubs of two needles. This makes a permanent but rigid connection between the syringes. If not carefully manipulated it may sometimes break the tips of the syringes.

For several years in this department there has been used a simple modification which may be rapidly and conveniently assembled. The drawing (Fig. 1) illustrates the method.

A 1" No. 22 Yale hypodermic needle is telescoped into a No. 19 ( $1\frac{1}{2}$ ") Yale needle so as to make a firm connection. One needle is attached to the frozen syringe, and the other to the tuberculin syringe which is filled with water. By forcing water into the "frozen" syringe, pressure is exerted on the "frozen" plunger and almost always it will be forced out. Air in the system should first be displaced with water for best results.

This simple device may be made in a minute from old needles, and kept on hand for use when needed. Any combination of needles may be used so long as they fit together firmly. The use of the two needles in this manner makes a flexible connection and diminishes the chances of breaking the ends of the syringes.

#### BIBLIOGRAPHY

1. McCoord, August B., *Science*: 94, 170.
2. Looney, Joseph M., *Science*: 94, 470.

## KEEPING UP WITH SCIENTIFIC LITERATURE\*

By DOROTHY ASHER MEYER, M.S., M.T.

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In the various fields of medical technology, as indeed in all scientific fields, it is of great importance for the individual worker to make an effort to keep abreast of the latest advances by reading the current journals. This should not be done just occasionally and haphazardly, but regularly and systematically. Since it is extremely difficult to completely cover even one specialized field, a sense of discrimination in choosing journals and articles must be developed, as well as a system of making notes or abstracts of articles read and also a system of keeping these notes intelligently indexed for future reference.

Although this may sound very complicated and time-consuming, actually it is a way of covering the literature that will make the most of the time you can spare for reading from your busy days in the laboratory. Plan to spend at least one evening a week for scientific reading, and set aside one Saturday afternoon a month for a visit to the best available medical library. This will repay you a hundred-fold for the time and effort expended.

In the first place, this is the best way to keep up with new methods, which is so essential in the rapidly progressive fields in which we are working. Then, too, you will often come across articles dealing with modifications and improvements of old methods, which teach new ways of saving time and getting more accurate results from already familiar procedures. Furthermore, reading is the only way to keep up with related fields in which you are not actually working. Then, too, you will become familiar with the names of workers in your own particular field. When you are having trouble

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\* Presented before the American Society of Medical Technologists at the Cleveland meeting, June, 1941.

with a certain method, it is of great advantage to communicate directly with the author of the method or experts in that particular determination, and get their advice to help straighten out your difficulties. Also, you may read articles which do not mean much to you at the time, but which will be invaluable at some future date in helping you solve certain routine or research problems. For all these reasons, as well as for general self-education, it is important to do as much scientific reading as possible.

The most important journals to cover are the general laboratory ones, such as the "American Journal of Medical Technology," the "Technical Bulletin of the Registry of Medical Technologists" and the "American Journal of Clinical Pathology," and then the ones in your own particular fields—such as journals of chemistry, bacteriology, pathology, immunology, etc. The abstract journals (which can be compared to "Reader's Digest") should also be perused. One of the best of these is "Chemical Abstracts," in which scientific articles of all nations are translated and abstracted. This journal covers certain subjects of interest to medical technologists, such as biochemistry, methods, pathology, pharmacology, food chemistry and nutrition, immunology, bacteriology and physiology.

When hunting papers on a special subject or by one particular author, use the "Quarterly Index Medicus." This reference journal is invaluable in locating papers, and goes as far back as 1879. It covers all medical and related fields.

All these journals will be found in all good medical libraries. Scan the list of contents in the current journals each month, and then select by title those articles which are of interest to you. Next, glance at the summary of each selected article for a digest of its contents. Reading summaries of papers is an excellent means of locating material pertinent to your own work, and also of obtaining information on progress in related fields of science. If the summary indicates that the scope of the paper is in your field, read the article carefully, studying its tables and taking notes.

The individual technologist or the laboratory as a whole should keep a reading file. The handiest way is to keep an author index, and from that, make a cross-index of subjects. Each article read

should be entered on a card listing the full name of the author, the journal reference including volume, pages and year, and the title. Below this, a brief abstract of the article should be written on the card. Before placing the card in its alphabetical place in the author index, enter the reference under the proper subject heading in the subject index. Sometimes an article covers two subjects; then it should be entered twice. For example, an article on "The Determination of Calcium in Bone" should be entered under the heading "Bone" as well as under the heading "Calcium."

It is often possible to obtain a reprint of an article that interests you by requesting the author for one. A collection of reprints should be filed by some convenient system—by author, subject matter or year—just so that a particular reprint may be easily located when needed.

For writing abstracts of the articles, a few explanations are necessary. Abstracts are more than a series of loose notes. They indicate briefly and concisely the scope of the paper read, making special reference to any new methods or conclusions. Abstracts should be impersonal rather than critical, and should always report the authors' conclusions. They should be informational rather than descriptive, that is, they should contain a brief report of the actual results obtained by the author, rather than merely say what the paper is about. Figures and summarized tables should only be included if they are very important.

Dr. E. J. Crane, editor of "Chemical Abstracts," says: "The abstractor and indexer have a special problem in the use of words because of the necessity of brevity. They must build effectively without the use of decorations. The users of abstracts want meat without parsley or trimmings. . . . A good abstract is complete, clear, accurate, precise and reasonably brief."

With an ever-growing file of indexed abstracts, you will have an excellent record of your reading and also a means of referring to it quickly in future research. Once you start this system, you will find your reading much expanded, and you will now have a systematic way of keeping up with medical and scientific progress.

There are a few suggestions to offer to those of you who want

to write papers. First of all, choose a title that is concise and yet descriptive. Then make an outline that includes such headings as introduction, review of the literature, analysis of the subject, discussion and conclusions. Then proceed to the actual writing, either by expanding your outline, or putting your loose notes together. Try to make the discussion logical and unified, following an orderly sequence of topics, and explaining each topic clearly. Illustrate the meaning of a general statement by giving examples, and define all technical terms that the reader may not understand. Your conclusions may be a summing up of points, or recommendations, or just general statements. If a summary is to be included, write it as you would an abstract. Once the paper is written, revise it as many times as you like in order to achieve consistency, clearness, accuracy, lack of repetition, and good style, grammar and punctuation. In the matter of grammar, pay particular attention to the tenses. It is a good rule in scientific papers to stick to one tense whenever possible,

For a paper to be written about a research experiment, the first thing to do is to check all your calculations, making rough graphs whenever possible. Then draw your conclusions from the results of your experiment, including all possibilities. Be sure to record any exceptions in your results, and try to explain these. Here is an excellent outline for papers of this type, taken from "Preparation of Scientific and Technical Papers" by Sam F. Trelease and Emma S. Yule:

## "GENERAL OUTLINE OF A SCIENTIFIC ARTICLE

### *I. Title.*

### *II. Introduction.*

- (a) Nature of problem; scope; bearing; importance.
- (b) Review of the important literature on the subject.
- (c) Object of work.
- (d) Time and place of work.

### *III. Materials and Methods.*

- (a) Description of the equipment and materials.
- (b) Explanation of the way in which the work was done.  
Emphasize the features that are new.

#### IV. *Experiments and Results.*

- (a) Main principles, causal relations, or generalizations that are shown by the results. Choose one or several main points which you wish to prove.
- (b) Evidence (as shown by data) for each of these main points.
- (c) Exceptions and opposing theories, and explanations of these.
- (d) Comparison of your results and interpretations with those of other workers.

#### V. *Summary.*

A condensed account of the important contents, in a form suited to the requirements of abstract journals."

Lastly, don't be afraid to write! If you feel that you do not yet know enough about your pet topic to put it down in black and white, read up about it in the scientific journals. See what others have done in that field, both in the past and present. Review textbooks on the fundamental sciences, to refresh your background. Visit other laboratories to learn their methods and see what they have discovered. In this way, you will find yourself much more interested in your work than ever before; you will learn more and more as you go along, and you will expand and progress in your chosen field of medical technology.



## USE OF "BLOW PLATE" IN STUDY OF NASO-PHARYNGEAL FLORA

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Methods now used in obtaining material from the naso-pharynx such as swabbing are time consuming and require experience. This work suggests that use of the "blow plate," obtained by blowing the nose, has a field of usefulness in obtaining material from the naso-pharynx since it is easy on the patient and can be obtained by the public health nurse or even the parent and is representative of the flora of an area which is frequently one of the "sewers" and foci of infection of the body.

There is no claim that this method is as efficient in recovering the various microorganisms as the naso-pharyngeal swab since such a procedure will brush away surface coat and press organisms from the tissues to a greater degree than the blow. The blow, however, shows effect of exertion of the tissues in that a more varied flora is shown than on simple breathing. The swab frequently has a disadvantage in recovering so many organisms that isolation is difficult.

Although the healthy adult breathing half a minute may show an equal number of organisms to a blow, the blow will usually show more different organisms. Likewise, the "snort blow" (reverse of snore), performed like a hog, can be made to massage the naso-pharynx and give a still more varied flora. The "snort blow" is hard to teach the patient and, therefore, loses its practicability for general use.

Blowing through the nose varies from coughing on a plate since the organisms recovered are predominantly from the naso-pharynx instead of the throat, bronchi and bronchioles. That some may be from the later is evident, since gargling yeast and blowing often yields yeast colonies. Figure 1 of a blow taken by the Jennison



technique using Edgerton high speed photography shows how adequate a spray can be obtained by the blow.

#### *Experimental*

In the method used the subject first blows the nose on a nose wiper, then holding the plate, cover removed, almost perpendicular to and touching the chin, blows, constricting nose and with mouth closed, after a deep inspiration, on the medium of the plate. The cover is replaced and the plate incubated for 24 to 72 hours. The amount of air expelled, its force, and the agitation of the tissues in the effort, determine the organisms recovered. This varies with the individual, the attempt and the experience. The amount and rapidity of air expulsion can be studied and correlated with the organismal recovery by inverting a bottle full of water in a pan of water, blowing into the bottle through a tube and noticing the speed and amount of water displaced.

This work was performed on 90 presumably healthy children and 25 adults. Blow plates, cough plates and throat swabs were compared. Nutrient agar (pH 7.2), horse blood infusion agar (pH 7.6), and Bordet-Gengou (pH 5.0) mediums were used. The plates were incubated at 37°C. in the atmosphere and in the candle jar (carbon dioxide of about 3%). Studies were made during the months of August, September and October, 1941.

On averaging the recovery of organisms from adults it was found that cough plates usually yielded as many colonies as blow plates. With children, however, three to four times as many organisms often were recovered on the blow plate. Much depends upon the effort put into the attempt and this varies with the attempt and the care taken. There seems a tendency on the part of adults to refrain from blowing while the child is very frank in his attempt. This is illustrated since breathing on a plate half a minute by children yielded only about one-eighth the number of organisms as blowing.

In general, the carbon dioxide atmosphere yields more colonies (up to 3 times as many) although there is considerable variation. Often a series of 15 children will show an average of 10 to 40 colonies for the various mediums and procedures used. There seems a greater recovery of molds by cough and often the flora will index where the individual has been recently, as, for example, in the animal room. Incubation for 48 hours will often increase the number of colonies 50% over 24 hours' incubation. In general, the number of colonies growing on the Borget-Gengou medium is greater by several times while the number on nutrient agar and blood agar do not vary strikingly. There is some evidence that a decreased number of organisms and kinds of organisms is expelled by individuals remaining in a quieter atmosphere.

A chart is not included since, in some cases there are few organisms and in others countless numbers on the plates. The blow plate usually shows a mean number easily countable and observable. The anticipated proportion of individuals showing alpha and beta streptococci, diplococci, staphylococci, micrococci, gram negative bacilli, etc., for August, September and October were found. To

study organismal recoveries of *H. pertussis*, *N. meningitidis*, etc., this study will be carried further.

These results are sufficiently encouraging to suggest that the "blow plate" be added to our armamentarium for diagnosis of nasopharyngeal pathogens. It is obvious that more organisms gain exit from the body by the nose than the mouth. It is, we think, fortunate that the nose is directed downward and not horizontally for if it were, danger of spread of infection would be increased. As it is, many organisms are directed to the floor and wafted about only in accordance with the turbulence of the atmosphere. The cough can be compensated by the handkerchief while talking into another's face is inexcusable. The latter, however, does not carry the danger of coughing since in our results blowing on plates of medium through the mouth did not yield as many organisms as coughing.

In conclusion, the blow plate seems valuable for diagnosing and estimating organisms in the naso-pharynx. The method is easy and not an inconvenience to the individual. The lack of pain and the novelty of the method will result in the child welcoming rather than resenting collection of further specimens.

## AN EFFICIENT STERILIZER AND OTHER SUGGESTIONS FOR LABORATORIES

By J. N. FRAZER, M.T.

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### *Hot Air Sterilizer*

The cost of equipping and maintaining clinical laboratories is necessarily expensive. Laboratory apparatus is priced at high figures, but such apparatus will usually last a lifetime. Small clinical laboratories, on the other hand, cannot afford to pay for expensive apparatus. An efficient and economical hot air sterilizer is described here, with the hope that it will be welcomed by the average small clinical laboratory.

The ordinary portable oven, such as used on oil burner stoves, will serve as the oven for the sterilizer. The heating unit is composed of an economical two-burner electric hot plate, possessing three switches. These two objects can be sent to a machine or foundry shop, where an iron plate may be added to the sterilizer.

An iron plate is obtained and two circular holes are cut in it, allowing the heating surfaces to be exposed. This plate is bolted to the heating unit. Then, the plate is bolted to the bottom of the oven. This gives a sturdy and durable hot air sterilizer heated by electricity, and possessing glass windows in the door.

A Fahrenheit thermometer is passed through a stopper having an inner bore the same size as the thermometer. Then, a hole is bored through the top back corner of the sterilizer. The thermometer and stopper are inserted in the hole, allowing the thermometer to be suspended into the oven.

When all three switches are turned on, the temperature of 180 degrees F. can be reached in about twenty minutes. One of the

switches turned off will maintain the temperature with sufficient accuracy to insure complete sterilization.

### *Loeffler's Blood Serum Media*

This sterilizer may be used in the preparation of Loeffler's Blood Serum media. The media, ready to be coagulated, is slanted in baskets, and the baskets placed in the sterilizer. When the temperature of 100 degrees F. is reached, this temperature (with a little experimenting) may be maintained with only one switch on and the door open about one inch. The media may be inspected through the glass windows every few minutes. The media will coagulate properly within thirty to forty minutes. Then, it may be sterilized, in upright position, in the autoclave as usual. An empty pound coffee can, the top punched with holes, will serve as an efficient holder for tubes in the autoclave. This will result in unbroken and even surfaces on the slanted media.

### *Kline Antigen*

The Kline antigen is made by one of the most exacting technics possible. This antigen, on the other hand, is used in one of the simplest and most accurate tests for the presence of syphilis antibodies. A suggestion is offered here for the convenience of busy technologists who make their own antigen. The technic for making Kline antigen requires about eighteen, or more, consecutive hours to produce the finished antigen. It is best to make the antigen without stopping the process at any point. However, it is possible to save the first antigen wax obtained until the following day.

This antigen wax may be stored in its glass-stoppered bottle at room temperature. If stored in the ice box, an antigen will result that is more sensitive than the standard. On the following morning, the process may be resumed and carried through to completion.

The finished antigen is comparable in every way to the standard antigen. This antigen is made more conveniently, and is reproducible in subsequent batches of antigen with the same accuracy.

### *Urea Clearance Kidney Function Test*

Small clinical laboratories, and occasionally the larger ones, sel-

dom have need of the urea clearance kidney function test. This test can be easily run, and constitutes the most accurate criterion in the diagnosis of impaired kidney function. However, it is surprising to know there are a number of technologists who do not approve of this test. Some believe it to be dependent upon the volume of urine excreted, while others think it is simply not accurate as a kidney function test.

The fallacy in reasoning of those laboratories having little or no success lies in the calculation for the procedure. The method as published in Kolmer and Boerner's Approved Laboratory Technic will illustrate this contention. If the urea nitrogen plus ammonia nitrogen is determined, the formula for the percentage of average normal maximum clearance is  $1.26UV$  divided by  $B$ . (The term  $U$  is the urea nitrogen plus ammonia nitrogen concentration of the urine in milligrams per 100 cc. The term  $V$  is the volume of urine excreted per minutes in cubic centimeters, and  $B$  is the urea nitrogen concentration of the blood in milligrams per 100 cc.)

The term  $U$  is gotten earlier in the determination of the urea nitrogen plus ammonia nitrogen of the urine. The calculation for this is  $(20 \text{ cc.} - N/100 \text{ NaOH used}) \times 0.00056 \times \text{volume of urine in cc.}$  This calculation gives the grams of urea nitrogen plus ammonia nitrogen present in the volume of urine excreted.

This value should be converted to milligrams, and then the concentration of urea nitrogen plus ammonia nitrogen present in 100 cc. of the urine is determined.

Those who have no success with this method invariably use the urea nitrogen plus ammonia nitrogen concentration for the volume of urine excreted. They overlook the necessity of calculating the concentration per 100 cc. of urine. The discovery of the frequency of this error in laboratories has made it worthy of mention here.

### *Summary*

1. An economical sterilizer, costing one-tenth the cost of the commercial product, is described.

2. A suggestion is offered for using this sterilizer in the preparation of Loeffler's Blood Serum media.
3. A saving of time is suggested for those who make their own Kline antigen.
4. A fallacy in reasoning, when performing the urea clearance kidney function test, is discussed with the hope that this accurate and sensitive test will become more in demand.



## ABSTRACTS

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**THE RELATION OF THE THYROID AND THE PITUITARY GLANDS TO IODINE METABOLISM:** A. Chapman, *Endocrinology*, vol. 29, No. 5, Nov., '41, p. 680.

The response of the thyroid gland to low iodine intake was essentially the same, that is, increase in weight, increase in height of the acinar epithelium and increased vascularity whether the pituitary gland was present or had been removed.

**THE PLASMA LEVELS OF VITAMIN A AFTER THE INGESTION OF STANDARD DOSES: STUDIES IN NORMAL SUBJECTS AND PATIENTS WITH CIRRHOSIS OF THE LIVER:** E. P. Ralli, E. Bauman, L. B. Roberts, Jr. *Clin. Inves.*, vol. XX, No. 6, Nov., '41, p. 709.

Normal controls were given 20,000 U.S.P. units of vitamin A. Another group of normals and 5 patients with cirrhosis and 1 with catarrhal jaundice were given 100,000 U.S.P. units. The Vitamin A plasma values rose much less in the patients with liver damage than in the normals. These results agree with previous reports of low concentration of vitamin A in the livers of patients with cirrhosis.

**STUDY OF HAZARDS IN SPRAY PAINTING WITH GASOLINE AS A DILUENT:** J. H. Sterner, Jr. *Ind. Hyg. & Tox.*, vol. 23, No. 9, Nov., '41, p. 437.

Concentration of hydrocarbons in the atmosphere and a discussion of the effectiveness of various respirators is presented. Laboratory studies of these spray painters revealed a significant decrease in hemoglobin, erythrocyte, and cell volume values, with an increase in mean corpuscular hemoglobin, mean corpuscular volume, and reticulocyte count.

**THE THIAMIN CONTENT OF HUMAN BLOOD AND URINE AS DETERMINED BY THE FERMENTATION METHOD: R. Goodhart and T. Nitzberg, Jr. *Cin. Inves.*, vol. XX, No. 6, Nov., '41, p. 625.**

A variation of the fermentation method of Schultz, Atkin and Frey was used. Average blood value for 86 determinations on 45 normal subjects was 5.39 micrograms per 100 cc. with a range from 3.1 to 9.2.

Values for 24-hr. urine specimens averaged 596 micrograms with a range from 240 to 1327.

Blood values below 3.0 micrograms were so frequently associated with peripheral neuropathy as to make it seem likely that values below 3.0 by the fermentation method would indicate a thiamin deficiency.

**THE COMPLEMENT FIXATION TEST IN THE DIAGNOSIS OF VIRUS INFECTIONS OF THE CENTRAL NERVOUS SYSTEM: J. Casals and R. Palacios, Jr. *Exp. Med.*, vol. 74, No. 5, Nov., '41, p. 409.**

Preparation of the antigen, usually from mouse brain is described and the directions for and results of the complement fixation test are given. Reliable results are reported for rabies, St. Louis encephalitis, Japanese B encephalitis, lymphocytic choriomeningitis, Eastern and Western equine encephalomyelitis, louping ill and the spontaneous encephalomyelitis of mice. Inactivation temperatures are determined for the species of the sera, regardless of the virus involved.

**A SIMPLIFICATION OF THE EVANS BLUE METHOD OF BLOOD VOLUME DETERMINATION: C. R. Harington, E. E. Pochin and J. R. Squire, *Clin. Sci.*, vol. 4, No. 3, Oct., '41, p. 311.**

A variation of the dye injection method is presented which avoids the objectionable natural serum pigments, opalescence and fat content following meals. Evans blue, the dye used, is extracted from plasma into butyl alcohol and then estimated photoelectrically or colorimetrically. Observation on 15 normal individuals are presented.

**FLUCTUATIONS IN THE BLOOD ELECTROLYTES IN RELATION TO THE MENSTRUAL CYCLE:** F. M. P. Eckstein, M. Lubran and T. McKeown, *Guy's Hosp. Rep.*, vol. 90, No. 1, 1940-41, p. 28.

In general the blood Na and Cl rose during the proliferative phase, reaching a peak at about the middle of the cycle. In the second half of the cycle they fell until the onset of menstruation or shortly after. The relation of serum potassium to the cycle was not constant.

**THE AGGLUTINATION REACTION IN TULAREMIA:** J. C. Ransmeier and C. L. Ewing, Jr. *Inf. Dis.*, vol. 69, No. 3, p. 193.

Agglutination reactions in 87 non-fatal and 10 fatal cases are presented together with 35 fatal cases taken from the literature. In all cases specific agglutinins for *B. tularensis* were absent for the first week. They usually began to appear in low titer in the second week with rapid increase in the third and fourth weeks attaining a maximum from the 4th to the 8th week. Gradual decrease began to occur in the 8th and 9th week with some agglutination observed as long as 11½ years later. Only 1 case showed complete disappearance. About 10% of patients with an antitularense titer of 1:320 or more showed cross agglutination of *B. abortus* while about 21% of undulant fever patients showed cross agglutination with *B. tularensis* when their antiabortus titer was over 1:320.

**AGRANULOCYTIC ANGINA:** R. V. Leser, Jr. *Ind. State Med. Assoc.*, vol. 34, No. 2, Feb., '41, p. 64.

A resume of the disease is given stressing the fact that drugs of the sulfonamide series may be causative agents. Thus far no cases of death from acute agranulocytosis following sulfathiazol administration have been reported, though leukopenia and granulocytopenia have been observed.

The "relapse" of a pneumonia case has been found to be the development of acute agranulocytosis following sulfonamide administration.

**INTESTINAL PROTOZOA IN 106 PARASITOLOGY STUDENTS:**

**R. M. Stabler, Jr. Parasitology, vol. 27, No. 1, Feb., '41, p. 90.**

Of the students examined, 34% were positive for protozoa while 66% were negative. Individual percentages were: *E. histolytica* 8%, *E. coli* 8%, *E. nana* 13%, *D. fragilis* 3%, *G. lamblia* 11%, multiple infections 8% and *Blastocystis hominis* 69%.

**THE RELIABILITY OF GUINEA-PIG INOCULATION TEST FOR THE DIAGNOSIS OF HUMAN TUBERCULAR AFFECTIONS:**

**C. B. Dhurandhar, Ind. Jr. Med. Res., vol. 29, No. 3, July, '41, p. 531.**

The guinea pig inoculation test was found to be considerably less sensitive than usually believed. Variations in virulence of the organism were outstanding. Guinea pigs showing massive caseation did not always show loss in weight or increased temperature. Inoculation of 1,000 organisms or less failed to produce infection in 30-36% of the animals.

**A COMPARATIVE STUDY OF FOUR SLIDE PRECIPITATION TESTS FOR SYPHILIS: E. C. J. Sung, Chinese Med. Jr., vol. 60, No. 2, Aug., '41, p. 126.**

The four slide tests studied were Laughlen, Leiboff, Ide and Mazzini and they were compared with the Kline diagnostic and Kolmer complement-fixation tests. The Mazzini was found to be the best of the four with a specificity of 100% and a sensitivity of 100% in untreated and 88.67% in treated syphilitic cases.

**DIAGNOSTIC AND PROGNOSTIC VALUE OF ESTIMATIONS OF THE FREE SUGAR IN PLEURAL EFFUSIONS: E. Nassau, Tubercle, vol. 22, No. 10, Oct., '41, p. 249.**

Sugars were done by the Hagedorn-Jensen technique. Cultures for tubercle bacilli were made on Petragnin's medium. Sugar concentrations of over 70 mg.% were associated with effusions that were either sterile, or, if containing tubercle bacilli, were absorbed in 6-8 weeks. Sugar concentration under 50 mg.% almost invariably were associated with tubercle bacilli and absorption was usually delayed or empyema followed.

**THE APPLICATION OF THE FALLING-DROP METHOD FOR SPECIFIC GRAVITY MEASUREMENT TO THE DETERMINATION OF SERUM ALBUMIN:** P. H. Barbour, Jr., Yale Jr. Biol. & Med., vol. 14, No. 1, Oct., '41.

A variation of the Barbour-Hamilton falling-drop technique has been adapted for serum albumin. Ammonium sulfate, used for "salting out," is the only reagent required. The time for the separation has been cut to 1 hour. The sources of error are compared favorably with those of the Howe-Kjeldahl technique.

**MIXED MENINGITIS (MENINGOCOCCUS AND PNEUMOCOCCUS).** Report of a Case with Recovery: J. Rosenblum and S. Pearlman, Arch. of Ped., vol. 59, No. 1, Jan., '42, p. 43.

A meningococcus meningitis was treated with antimeningococcus serum intravenously and sulfanilamide by mouth with apparent improvement. There was a recurrence of symptoms and at this time the spinal fluid revealed a Pneumococcus type 6 organism. This was then treated with sulfapyridine by mouth, by rectum and intravenously. Specific serum was not used. Recovery occurred but there were five relapses after the Pneumococcus infection was discovered.

**THE SECRETION OF SULFONAMIDE DRUGS IN GASTRIC JUICE:** M. Cooke, H. W. Davenport & L. S. Goodman, Yale Jr. Biol. & Med., vol. 14, No. 1, Oct., '41, p. 13.

Dogs were used for these observations. Sulfanilamide and sulfapyridine were more concentrated in gastric juice than in whole blood or plasma while sulfathiazole, sulfadiazine and acetylsulfanilamide were much less concentrated. The concentration ratios are apparently independent of the secretagogue used and also of the factors such as free HCl, total acid, etc.

Sulfathiazole especially appears to be secreted with difficulty by gland cells.

These observations as well as data in the literature would suggest that in treating bacterial infections of glands or body fluids separated from the blood stream by secretory cell membranes, the drug used should not only be active against the organism involved but capable of attaining an effective concentration at the site of infection.

**THE INFLUENCE OF CHRONIC VITAMIN-A DEFICIENCY ON THE BACTERIAL FLORA OF RATS: C. G. Burn, A. V. Orten, A. H. Smith, Yale Jr. Biol. & Med., vol. 14, No. 1, Oct., '41, p. 89.**

Chronic vitamin-A deficiencies were produced and maintained for 1 year during which time a progressive increase in the number of bacteria on the mucous membrane and in the tissues became evident. By the end of the year the bacteriological findings resembled those of rats with acute vitamin-A deficiencies. The flora changed from the few colonies of a variety of organisms of the normal to many colonies of *S. aureus* and *Ps. fluorescens* predominantly. A majority of the older rats with chronic vitamin-A deficiencies showed suppurative lesions usually in the sinuses and middle ear. *S. aureus* was believed to be the primary organism with *Ps. fluorescens* and *Br. bronchisepticus* as secondary invaders.

**TULAREMIA DUE TO TICK BITE: S. L. Levin, Southern Med. Jr., vol. 34, No. 11, Nov., '41, p. 1169.**

The clinical manifestations of tularemia due to tick bite are discussed. Of 13 cases of tularemia occurring in one hospital, 7 were traced to tick bite. One of these was fatal. Case histories of the 7 are given.

**HEMOLYTIC STREPTOCOCCI FROM PARTURIENT WOMEN: C. J. Wu, Chinese Med. Jr., vol. 60, No. 2, Aug., '41, p. 109.**

This study covers observations on 1,055 parturient women with the following results: Of 406 strains of hemolytic streptococci isolated in vaginal cultures, 114 were Lancefield Group A, 2 were Group B, 156 were Group C and 133 were Group G. Of these 345 patients with positive cultures, 68 had febrile puerperium and of these febrile cases, 51 were associated with Group A, 10 with Group C and 7 with Group G organisms. Many patients carried Group A streptococci without developing sepsis on delivery suggesting that these strains were of low virulence or that the population had developed a high degree of immunity to them.

The organisms were not found in enough of the throat cultures taken simultaneously to suggest autogenous sources of infection.

**HYPOLYCEMIC EPILEPSY:** L. J. Robinson, Jr. *Nerv. & Men. Dis.*, vol. 92, No. 4, Oct., '40, p. 442.

Of 1,500 epileptics studied, only two were found to be hypoglycemic epilepsy. While many others showed low blood sugar levels, these levels could be further reduced with insulin without resulting in a seizure. In hypoglycemic epilepsy, sweating was found to precede the seizure whereas otherwise it accompanied or followed.

Surgical removal of any insulin producing tumor is recommended. If none can be found, phenobarbital, frequent feedings and the use of a low carbohydrate, high-fat diet were helpful.

**THE INFLUENCE OF LACTOSE ON CALCIUM RETENTION IN CHILDREN:** R. Mills, H. Breiter, E. Kempster, B. McKey, M. Pickens and J. Outhouse, Jr. *Nutrition*, vol. 20, No. 5, Nov., '40, p. 467.

Five boys of 5-7 years were placed on a basal diet plus vitamin D and approximately 500 mgs. calcium daily. Calcium balances were determined. Lactose was added (36 gms. daily) to the above and calcium balances repeated. An average increase in calcium retention of 33.5% was reported.

**THE INFLUENCE OF FAT ON CALCIUM AND PHOSPHORUS METABOLISM:** J. H. Jones, Jr. *Nutrition*, vol. 20, No. 4, Oct., '40, p. 367.

Lard and oleic acid showed antirachitic value when fed to rats while sodium oleate and the calcium soaps of lard did not. The effect was more pronounced on diets fairly high in phosphorus. The results obtained support the theory that the effect is due to the increase in intestinal acidity rather than the liberation of phosphorus by the formation of calcium soaps of the fatty acids.

**PHOTOELECTRIC ESTIMATION OF INDOLE:** C. B. Allsopp, *Biochem. Jr.*, vol. 35, Nos. 8 & 9, Sept., '41, p. 965.

A photoelectric method for the estimation of small amounts of indole and its derivatives by means of Ehrlich's p-dimethylaminobenzaldehyde reagent is described. Use of the photoelectric colorimeter reduces the reading time and thus eliminates errors due to fading of the color.

**THE NATURE OF HUMAN LEUKEMIA: EVIDENCE FROM THE CULTURE OF BONE MARROW CELLS IN VITRO: M. Israels, Jr. Path. & Bact., vol. 51, No. 2, Sept., '40, p. 235.**

Cells of both granulocytic and monocytic series were found to progress toward stages which were final and in which no further mitosis occurred. For the granulocytes these were metamyelocytes and young polymorphonuclears. Monocytic cells became mature phagocytic monocytes. Granulocytes in blood of monocytic leukemia matured like those of myeloid leukemia.

**OBSERVATIONS ON THE BLOOD IODINE. I. THE BLOOD IODINE IN HEALTH, IN THYROID AND CARDIORENAL DISEASE, AND IN LEUKEMIA: K. B. Turner, A. DeLamater and W. D. Province, Jr. Clin. Inves., vol. 19, No. 3, May, '40, p. 515.**

The method used was that of Trevorrow & Fashena and to avoid variation, the norms established in New York City were used. The average was taken as 4.0 — 10.0 micrograms.

In general hyperthyroidism gave an elevation, hypothyroidism low normal or low, hypertensive vascular disease gave a low or low normal. Myeloid leukemia gave low values while lymphoid leukemia gave normal or abnormally high values.

**INCREASED UROBILINOGEN EXCRETION AND ACUTE HEMOLYTIC ANEMIA IN PATIENTS TREATED WITH SULFAPYRIDINE: L. A. Erf and C. M. MacLeod, Jr. Clin. Inves., vol. 19, No. 3, May, '40, p. 451.**

Twenty-six patients with pneumonia were studied. Twenty of these received sulfapyridine. Detailed case studies are given. Eighteen showed excretion (urine and stool) within normal limits. Eight gave increased readings and of these, three showed evidence of hemolytic anemia.



## NEWS AND ANNOUNCEMENTS

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### COMMITTEE APPOINTMENTS FOR FISCAL YEAR, 1941-1942

#### PROGRAM—

Mrs. Claryce M. Pitts, Chairman  
803 E. 32nd St.  
Austin, Texas

Miss Henrietta M. Lyle  
R. 2, Maple Manor  
Columbia, Pa.

Miss Bernice Elliott  
5107 Webster St.  
Omaha, Neb.

Miss Cecelia M. Kortuem  
721 N. LaSalle St.  
Chicago, Ill.

#### EXHIBITS—

Marian A. Baker, Chairman  
31 Lincoln Park  
Newark, N. J.

Miss Catherine Williams  
525 N. E. 15th St.  
Miami, Fla.

#### PUBLICITY—

Mr. David Silcock, Chairman  
R. 1  
Versailles, Ky.

Mr. John Fitzgerald  
State St. Hospital  
Portland, Maine  
Miss Marie Gianniny  
143 Lewis Ave.  
East Lansdowne, Pa.

## LOCAL ARRANGEMENTS—

Miss Fannie K. DeSilver, Chairman  
Alden Park Manor  
Germantown, Philadelphia, Pa.  
Miss Marguerite Lukens  
Lansdowne Ave. and Cedar Lane  
Upper Darby, Pa.  
Miss Kathleen Cornell  
1340 W. Hunting Park  
Philadelphia, Pa.

## ENTERTAINMENT—

Miss Dorothea Zoll, Chairman  
1420 W. Gerard Ave.  
Philadelphia, Pa.  
Miss Cora Louise Miller  
Jeannes Hospital  
Fox Chase  
Philadelphia, Pa.  
Miss Mary F. Eichman  
440 Lyceum Ave.  
Roxborough  
Philadelphia, Pa.

## SISTERS' RESERVATIONS—

Sister Frances Maloney, Chairman  
St. Joseph's Hospital  
Philadelphia, Pa.

Sister M. Maura Barth  
St. Francis Hospital  
Wilmington, Del.

Sister Therese J. McHugh  
St. Joseph's Hospital  
Pittsburgh, Pa.

REGISTRATION—

Miss Rose Edith Matthaei, Chairman  
2119 Arbor Ave.  
Houston, Tex.

Mrs. Edith Bryan  
Chesapeake & Ohio R. R. Hospital  
Huntington, W. Va.

Miss Louise Sheldon  
81 Bay State Road  
Boston, Mass.

AWARDS—

Miss Evelyn N. Jardine, Chairman  
Hanover, N. H.

Dr. Roy Kracke  
Emory University  
Atlanta, Ga.

Dr. James B. McNaught  
Stanford University  
San Francisco, Cal.

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TO THE MEMBERS OF THE AMERICAN SOCIETY OF  
MEDICAL TECHNOLOGISTS AND ALL REGISTERED  
TECHNOLOGISTS

The Advisory Board of the American Society of Medical Technologists wishes to make a special appeal to all state and local societies to affiliate with the American Society. If you do not have a

state society we want to urge all registered medical technologists to join in forming local and state societies looking toward affiliation with the national organization. There are many excellent reasons why every state should be affiliated with the American Society. We would like to point out a few of these.

First and most important is the fact that in order to advance our profession we must have a strong national society made up of actively working subordinate groups. As you are all aware, "in union there is strength," and in these troublous times there are many problems confronting us that only we technologists working as a unit can solve. Too many of us are prone to push our problems as a profession onto the Board of Registry and the American Society of Clinical Pathologists. They have always done everything in their power to help us and have responded generously whenever we have called upon them, but, it has always been the desire of the Board of Registry to be what the name implies: namely a Board for the registration of qualified medical laboratory workers and the setting of standards for these same workers. The American Society of Clinical Pathologists has always been our advisor and as all of us know that to them we owe our very existence as a professional group but we should not use either this organization or the Board of Registry as a clearing house for our problems.

We should also like to point out a very practical consideration as to why every state should be an integral part of the American Society. In order for our organization to be a truly American Society and truly represent the interests of all sections of the country, every section must be represented. Such is not now the case. This was brought forcibly to the attention of one of the members of the Advisory Board when she was asked to serve also on the nominating committee this year. When the time came to ask for nomination of candidates for our officers who are to lead and represent us during the coming year, the nominating committee could only contact the representatives of the societies already affiliated and ask them to submit names of suitable candidates. Since our executive office has no way of knowing who are active in the unaffiliated states we are quite sure that this committee has passed over much fine material for national officers and as a consequence the country as a whole

is not adequately represented in our organization. We are sure that other committees found this same difficulty in contacting members as regards other phases of our national program.

We would therefore earnestly urge every member to do everything possible to forward national affiliation in his section. Information concerning the formation of societies and their affiliation may be obtained through the executive office.

(Signed) THE ADVISORY BOARD,

Lucille Wallace, M.T., Chairman

Sister M. Jeannette Bodoh, M.T.

Henrietta Lyle, M.T.

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#### DEFENSE PROJECT FOR MEDICAL TECHNOLOGISTS IN THE TULSA, OKLAHOMA DISTRICT

An interesting defense project has been inaugurated by the Tulsa Round Table Society of Medical Technologists. This group is the Tulsa County local society of the Oklahoma State Society of Medical Technologists. The project came about in this manner. Tulsa is the center of many defense industries. In addition to these industries that have come about as the result of the war, Tulsa lies in the heart of America's greatest oil fields and for many years has been known as the "oil capital of the world." Last fall a very disastrous fire occurred in a large refinery in a nearby city. Many workmen were burned and the blood plasma banks of the entire state were drained for the treatment of these men. As a result the local Red Cross through the office of Civilian Defense issued a call for donors to replenish the supply of plasma. The response was overwhelming. Hundreds of persons, especially employees of the large oil companies volunteered their blood. Then another situation arose. There was plenty of blood being offered but the staffs of the hospitals which were designated as blood banks were inadequate to collect, test, separate, and prepare the plasma for use in addition to their regular hospital laboratory routine. Then, too, the situation was complicated by the fact that these donors must come to the hospitals

after their working hours or on holidays in order that their blood might be taken. In order to meet this situation, members of the local society of medical technologists (especially those working in private clinics, schools, commercial laboratories, etc.) volunteered their services to aid in collecting and preparing blood plasma for use in an emergency. In order to render the most efficient help to the participating hospitals the unit was set up in this manner: All registered medical technologists who were willing to give a certain amount of their time after their regular working hours or on Sundays or holidays were asked to meet in order to form a unit. This group now meets two hours weekly to receive instruction in a standard method of collecting and preparing blood plasma. The instruction is given by Dr. I. A. Nelson (ASCP), pathologist of St. John's Hospital in Tulsa and a member of the state advisory Board of the Oklahoma Society of Medical Technologists. The method being taught is that one described by L. R. Newhouser, Lt. Commdr. (M.C.), U. S. Navy and D. B. Kendrick, Captain (M.C.) U. S. Army of the U. S. Navy Medical School and the U. S. Army Medical School, respectively, in a publication entitled "Human Plasma," and is the method accepted by the United States Army and Navy for the preparation of blood plasma.

When all of the participating technologists are thoroughly familiar with the method and have become trained in the use of the particular hospitals' equipment where the blood is to be taken; they will report at regular hours to collect blood from donors secured through the office of civilian defense. At the present time blood will only be taken for local or state use but later if the need arises, plasma can be sent from the local blood banks to the large plasma pools being set up by the Red Cross in key cities for use in a national emergency.

It is felt that such a unit of medical technologists, trained and ready, will be of great value in the event of a national emergency and can also be of value in releasing doctors for other phases of national defense work. We hope that in time such units will be formed all over the United States as this is one phase of our national defense program where medical technologists can be of the greatest service.

## AN OPEN LETTER TO NEW REGISTRANTS OF THE REGISTRY OF MEDICAL TECHNOLOGISTS, A.S.C.P.

Since you are now a registered medical technologist, you will be interested in the American Society of Medical Technologists, popularly called the A.S.M.T.

(1) What is the A.S.M.T.?

It is a national society of Registered Medical Technologists devoted to the ideals, aims, science, and study of the practice of medical technology.

(2) What opportunities are offered by the A.S.M.T. convention?

- (a) Meeting members of the A.S.C.P., who gave us our title, standing, and profession.
- (b) The advantage of presentation of scientific papers and the knowledge gained by attendance in assembly during presentation of such papers.
- (c) The A.M.A. Exhibits, a revelation to medical science, and those of our own convention.
- (d) Seeing what's new in medical technology.
- (e) Visiting other laboratories in various medical centers.
- (f) Meeting the people who comprise the profession of medical technology, and
- (g) Enjoying professional fellowship.

(3) What does the A.S.M.T. member gain through this membership?

- (a) Background: Acquired through contacts with leaders in this profession, leaders in the various medical centers, etc.
- (b) Vision, perspective.
- (c) Unity.
- (d) Professional fellowship.
- (e) A journal devoted to the study and practice of medical technology.

## (4) Dues?

\$5.00. \$1.00 application fee and \$4.00 dues first year; \$4.00 thereafter (includes the American Journal of Medical Technology).

*We urge active members in the Society to contact prospective members on this basis and refer them to the executive office.*

*Oklahoma*

Annual fall meeting of the Oklahoma Society of Medical Technologists held November 8, 1941, Mayo Hotel, Tulsa, Oklahoma.

## PROGRAM

9:00-10:00 A.M.—Registration.

Address of Welcome.....Mary Sherry, M.T. (A.S.C.P.)  
President Wesley Hospital, Oklahoma City

Invocation.....Rev. A. N. Cameron  
Memorial Christian Church, Tulsa, Oklahoma

10:00-10:30 A.M.—Film "Blood Bank"  
Courtesy American Hospital Supply Corp.

10:30-11:30 A.M.—"Incidence of Parasites in Oklahoma School Children".....Dr. Donald McMullen  
Ass't Prof. Dept. Hygiene and Public Health—Acting Head  
of Dept., Oklahoma School of Medicine

11:30-12:00 M.—Newer Methods Used in Milk and Water Analysis.....Mr. H. A. Spencer, M.T. (A.S.C.P.)  
Health Department, Tulsa, Oklahoma

2:00- 2:30 P.M.—Film "Pneumonia"  
Courtesy Lederle Laboratories

2:30- 3:00 P.M.—Report of National Convention.....  
Marie Clark, M.T. (A.S.C.P.)  
Medical Arts Laboratories, Oklahoma City, Oklahoma

3:00- 4:00 P.M.—"The Training of Laboratory Personnel".....  
Round Table.....led by Ivo Nelson, M.D. (A.S.C.P.)



- A. "The Present Status of the Medical Technologist in Oklahoma".....Elsie Berousek, M.T. (A.S.C.P.)  
Hubbard Hospital, Oklahoma City, Oklahoma
- B. "Training of and Problems of the Laboratory Worker in a Large Hospital".....Sr. Regina, M.T. (A.S.C.P.)  
St. Anthony Hospital, Oklahoma City, Oklahoma  
Zana Skidmore, M.T. (A.S.C.P.)  
St. Johns Hospital, Tulsa, Oklahoma
- C. "Small Hospital".....Sr. Florina, M.T. (A.S.C.P.)  
Ponca City, Oklahoma  
Bernice Bynum, M.T. (A.S.C.P.)  
Wesley Hospital, Oklahoma City, Oklahoma
- D. "Private Clinic".....Doris Franz, M.T. (A.S.C.P.)  
Veazey Clinic, Ardmore, Oklahoma  
Louise Loonus, M.T. (A.S.C.P.)  
Springer Clinic, Tulsa, Oklahoma
- E. "City and State Health Department".....  
Mary Alexander, M.T. (A.S.C.P.)  
City Health Dept., Tulsa, Oklahoma  
Catherine Harris  
Oklahoma State Health Dept.
- F. "Commercial Laboratories".....Marie Clark, M.T. (A.S.C.P.)  
Medical Arts Laboratories, Oklahoma City, Oklahoma  
Hawthorne Nelson, M.D.  
Medical Arts Lab., Tulsa, Oklahoma

#### 4:00-5:00 P.M.—Business Session

The following officers were elected for the ensuing year:

President—Elsie Berousek.

Vice-President—Mable Olney.

Secretary-Treasurer—Bernice Bynum.

Corresponding Secretary—Zana Skidmore.

7:00 P.M.—Banquet.....Ivory Room  
 Toastmaster.....R. M. Adams, M.D.  
 Superintendent Public Health  
 Guest Speaker.....F. R. Hassler, M.D.  
 Director State Health Department Laboratories

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ATTENTION A. S. M. T. MEMBERS  
 SCIENTIFIC EXHIBITS

A request is made for Scientific Exhibits to be presented at the coming meeting of the American Society of Medical Technologists in Philadelphia, June 8, 9, and 10.

Several innovations are being introduced this year. Transportation charges on Exhibits, up to a reasonable amount, are to be paid by the Society. Separate awards are offered for papers and exhibits, a gold and a silver medal being awarded for the two best Scientific Exhibits.

Individual members, groups of members, and State and Local Societies wishing to present exhibits are requested to send the following information to the Committee Chairman:

1. Title of Exhibit.
2. Name of Exhibitor.
3. Space required for Exhibit.

Marian A. Baker, M.T. (A.S.C.P.), Chairman,  
 31 Lincoln Park,  
 Newark, N. J.

Catherine Williams, M.T. (A.S.C.P.),  
 525 N.E. 15th St.,  
 Miami, Fla.

